

I. Journal Articles.

- Livescu, D. and Ryu, J. "Vorticity dynamics after the shock-turbulence interaction," *Shock Waves* **26**, 241-251, 2016.
- Schilling, O., Livescu, D., Prestridge, K.P. and Ramaprabhu, P. "The 14th International Workshop on the Physics of Compressible Turbulent Mixing," *ASME J. Fluids Eng.* **138** (7), 070301, 2016.
- Pulido, J., Livescu, D., Woodring, J., Ahrens, J. and Hamann, B. "Survey and analysis of multiresolution methods for turbulence data," *Computers & Fluids* **125**, 39-58, 2016.
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- Schwarzkopf, J.D., Livescu, D., Baltzer, J. R., Gore, R.A and Ristorcelli, J.R. "A two-length scale turbulence model for single-phase multi-fluid mixing," *Flow Turbulence Combust.* **96**, 1-43, 2016.
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- Andrews, M.J., Youngs, D.L., Livescu, D. and Wei, T. "Computational studies for a two-dimensional Rayleigh-Taylor driven mixing layer for a tilted-rig," *ASME J. Fluids. Eng.*, **136**, 091212, 2014.
- Livescu, D. "Numerical simulations of two-fluid turbulent mixing at large density ratios and applications to the Rayleigh-Taylor instability," *Phil. Trans. R. Soc. A*, **371**, 20120185, 2013.
- Wei, T. and Livescu, D. "Late-time quadratic growth in single-mode Rayleigh-Taylor instability," *Phys. Rev. E* **86**, 046405, 2012.
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- Ristorcelli, J.R. and Livescu, D. "Correcting the anisotropic gradient transport of k ," *Flow Turbulence Combust.* **85**, 443-455, 2010.
- Petersen, M.R. and Livescu, D. "Forcing for statistically stationary compressible isotropic turbulence," *Phys. Fluids* **22**(11), 116101, 2010.

- Livescu, D., Ristorcelli, J.R., Gore, R.A., Dean, S.H., Cabot, W. and Cook, A.W. "High-Reynolds number Rayleigh-Taylor turbulence," *J. Turbul.* **10**, N13, 2009.
- Yu, H. and Livescu, D. "Rayleigh-Taylor instability in cylindrical geometry with compressible fluids," *Phys. Fluids* **20**(10), 104103, 2008.
- Livescu, D. and Ristorcelli, J.R. "Variable-density mixing in buoyancy-generated turbulence," *J. Fluid Mech.* **605**, 145-180, 2008.
- Livescu, D. "Comment on "Compressibility effects on the Rayleigh-Taylor instability of three layers" [Phys. Fluids 19, 096103 (2007)]," *Phys. Fluids* **20**(2), 029103, 2008.
- Livescu, D. and Ristorcelli, J.R. "Buoyancy-driven, variable-density turbulence," *J. Fluid Mech.* **591**, 43-71, 2007.
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- Livescu, D. "Compressibility Effects on the Rayleigh-Taylor Instability Growth between Immiscible Fluids," *Physics of Fluids* **16**(1), 118-127, 2004.
- Pedial-Collins, N.T., VanderHeyden, W.B., Zhang, D.Z., Dendy, E.D. and Livescu, D. "Parallel Operation of CartaBlanca on Shared and Distributed Memory Computers," *ACM Concurrency and Computation: Practice and Experience* **16**, 61-77, 2004.
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- Livescu, D., Jaber, F.A. and Madnia, C.K. "Passive Scalar Wake Behind a Line Source in Grid Turbulence," *Journal of Fluid Mechanics* **416**, 117-149, 2000.

II. Book Chapters

- Ryu, J. and Livescu, D. "Direct Numerical Simulations of isotropic turbulence interacting with a shock wave," *29th International Symposium on shock waves*, Vol. 2, pp. 1421-1428, ed. Riccardo Bonazza and D. Ranjan, Springer, Switzerland, 2015.
- Mohd-Yusof, J., Livescu, D. and Kelley T. M. "Adapting the CFDNS compressible Navier-Stokes solver to the Roadrunner architecture," in *Parallel Computational Fluid Dynamics, Recent Advances and Future Directions*, pp 95-109, ed. R. Biswas, DESTech Publications, Lancaster, PA, 2010.
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- Livescu, D. and Ristorcelli, J.R. "Mixing Characteristics in Buoyancy-Driven Turbulence," in *Advances in Turbulence XI*, Editors: J.M.L.M. Palma and A. Silva Lopes, Springer Proc. in Physics 117, 544-546, 2007.
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III. Peer-reviewed Conferences

- Livescu, D. and Li, Z., "Statistics of the subgrid-scales after the shock turbulence interaction," presented at the *15th European Turbulence Conference*, Delft, August 25-28, 2015.
- Baltzer, J.R. and Livescu, D. "Direct Numerical Simulations of turbulent mixing layers between two fluids of large density difference," presented at the *15th European Turbulence Conference*, Delft, August 25-28, 2015.

- Aslangil, D., Livescu, D. and Banerjee, A., "Variable-density mixing under variable pressure gradient," presented at the *15th European Turbulence Conference*, Delft, August 25-28, 2015.
- Livescu, D. and Li, Z. "Subgrid-scale backscatter after the shock turbulence interaction," to appear in the proceedings of the *19th Biennial APS Conference on Shock Compression of Condensed Matter*, Tampa, June 14-19, 2015.
- Tiang, Y., Jaber, F.A., Li, Z. and Livescu, D. "Numerical simulations of multi-fluid shock-turbulence interaction," to appear in the proceedings of the *19th Biennial APS Conference on Shock Compression of Condensed Matter*, Tampa, June 14-19, 2015.
- Li, Z. and Livescu, D. "A generalized diffuse interface method for accurate simulations of multi-component flows with immiscible materials," presented at the *1st Pan-American Congress on Computational Mechanics*, Buenos Aires, Argentina, April 27-29, 2015.
- Livescu, D. and Ryu, J. "DNS and LIA analysis of the shock-turbulence interaction," presented at the *14th International Workshop on the Physics of Compressible Turbulent Mixing*, San Francisco, CA, August 31 – Sept. 5, 2014.
- Li, Z. and Livescu, D. "Cahn-Hilliard Navier-Stokes equations for the numerical simulations of immiscible Rayleigh-Taylor instability," presented at the *14th International Workshop on the Physics of Compressible Turbulent Mixing*, San Francisco, CA, August 31 – Sept. 5, 2014.
- Ryu, J. and Livescu, D. "Turbulent vortex dynamics across a normal shock wave," *Proceedings of the 21st International Shock Interaction Symposium*, ISBN 978-9934-517-57-0, 85-91, Riga, Latvia, August 3-8, 2014.
- Livescu, D. "The structure of the Rayleigh-Taylor mixing layer," presented at the *17th US National Congress on Theoretical and Applied Mechanics*, Michigan State University, East Lansing, MI, June 15-20, 2014.
- Wei, T. and Livescu, D. "New findings on the growth of single-mode Rayleigh-Taylor instability," presented at the *17th US National Congress on Theoretical and Applied Mechanics*, Michigan State University, East Lansing, MI, June 15-20, 2014.
- Li, Z. and Livescu, D. "Cahn-Hilliard Navier-Stokes equations for the numerical simulations of immiscible Rayleigh-Taylor instability," presented at the *17th US National Congress on Theoretical and Applied Mechanics*, Michigan State University, East Lansing, MI, June 15-20, 2014.
- Livescu, D. and Wei, T. "Direct Numerical Simulations of tilted Rayleigh-Taylor instability," presented at the *14th European Turbulence Conference*, Lyon, France, September 1-4, 2013.
- Ryu, J. and Livescu, D. "Direct Numerical Simulations of isotropic turbulence interacting with a shock wave," presented at the *29th International Symposium on shock waves*, Madison, WI, July 14-19, 2013.
- Livescu, D. and Wei, T. "Direct Numerical Simulations of Rayleigh-Taylor instability with gravity inversion," in *Proceedings of the 7th International Conference on Computational Fluid Dynamics (ICCFD7)*, paper number 2304, Big Island, HI, July 9-13, 2012.
- Reckinger, S.J., Livescu, D. and Vasilyev, O.V. "Simulations of the compressible Rayleigh-Taylor

instability using the adaptive wavelet-collocation method,” in Proceedings of the 7th *International Conference on Computational Fluid Dynamics (ICCFD7)*, paper number 3801, Big Island, HI, July 9-13, 2012.

- Livescu, D. and Wei, T. “Turbulence characteristics in the variable-density Rayleigh-Taylor mixing layer,” presented at the 13th *International Symposium on the Physics of Compressible Turbulent Mixing (IWPCTM13)*, Woburn, England, July 16-20, 2012.
- Ryu, J. and Livescu, D. “Direct Numerical Simulations of isotropic and post-shock turbulence interacting with a shock wave,” presented at the 13th *International Symposium on the Physics of Compressible Turbulent Mixing (IWPCTM13)*, Woburn, England, July 16-20, 2012.
- Andrews, M.J., Livescu, D., Wei, T. and Youngs, D.L. “A test problem for two-dimensional turbulent mixing (RANS) model validation,” presented at the 13th *International Symposium on the Physics of Compressible Turbulent Mixing (IWPCTM13)*, Woburn, England, July 16-20, 2012.
- Livescu, D., Wei, T. and Petersen, M.R. “Direct Numerical Simulations of Rayleigh-Taylor instability,” presented at the 13th *European Turbulence Conference*, Warsaw, Poland, September 12-15, 2011.
- Livescu, D., Petersen, M.R. and Wei, T. “Turbulence and Mixing Characteristics in the Variable Density Rayleigh-Taylor Mixing Layer,” invited presentation at the 3rd *International Conference Turbulent Mixing and Beyond*, Trieste, Italy, 21 - 28 August 2011.
- Wei, T. and Livescu, D. “Turbulence and Mixing Characteristics in the Variable Density Rayleigh-Taylor Mixing Layer,” presented at the 3rd *International Conference Turbulent Mixing and Beyond*, Trieste, Italy, 21 - 28 August 2011.
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- Livescu, D. and Ristorcelli, J.R. “Mixing asymmetry in variable-density turbulence,” presented at the 12th *European Turbulence Conference*, Marburg, Germany, September 7-10, 2009.
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- Reckinger, S. J., Livescu, D. and Vasilyev, O. “Compressibility effects on the single mode Rayleigh-Taylor instability,” presented at the 2nd *International Conference Turbulent Mixing and Beyond*, Trieste, Italy, July 26-August 7, 2009.

- Mohd-Yusof, J., Livescu, D. and Kelley T. M. "Adapting the CFDNS compressible Navier-Stokes solver to the Roadrunner architecture," invited paper at the *21st International Conference on Parallel Computational Fluid Dynamics (ParCFD09)*, Moffett Field, CA, May 18-22, 2009.
- Mohd-Yusof, J., Livescu, D., Kelley, T.M., Petersen, M.R., Desai, N. "Fluid Flow Simulations on Roadrunner," invited paper at the SIAM Conference on Computational Science and Engineering (CSE09), Miami, FL, March 2-6, 2009.
- Ristorcelli, J.R., Livescu, D., Taylor, M., Hjelm, N., Clark, T., McCormick, P, and Martin, S. "A fluid dynamics viewpoint on material mixing," invited paper at *NECDC* 2008.
- Livescu, D., Ristorcelli, J.R., Gore, R.A., Dean, S.H. "High Reynolds number Rayleigh-Taylor turbulence," presented at the *11th International Workshop on the Physics of Compressible Turbulent Mixing*, Santa Fe, NM, July 11-17, 2008.
- Livescu, D. and Ristorcelli, J.R. "Mixing asymmetry and the mix parameter in variable density turbulence," presented at the *11th International Workshop on the Physics of Compressible Turbulent Mixing*, Santa Fe, NM, July 11-17, 2008.
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- Francois, M.M., Dendy, E.D., Livescu, D., Lowrie, R.B. and Steinkamp, M.J. "Effects of Different Numerical Interface Methods on Hydrodynamics Instability," in *Proceedings of the 10th International Workshop on the Physics of Compressible Turbulent Mixing*, Paris, France, July 17-21, 2006.
- Livescu, D. "Surface Dynamics in Homogeneous, Buoyancy-Driven, Variable Density Turbulence," presented at the *International Workshop on Physics and Mathematics of Growing Interfaces*, Santa Fe, NM, January 9-13, 2006.
- Pedial-Collins, N.T, Vanderheyden, W.B., Zhang, D.Z., Dendy, E.D., and Livescu, D. "Parallel Operation of CartaBlanca on Shared and Distributed Memory Computers," in *Proceedings of the Joint ACM Java Grande - ISCOPE 2002 Conference*, 235, Seattle, Washington, November 3 - 5, 2002.

- Livescu, D. and Madnia, C.K. “Non-Premixed Flame-Turbulence Interaction in Compressible Turbulence,” presented at the *9th European Turbulence Conference*, University of Southampton, UK, July 2 - 5, 2002.
- Vanderheyden, W.B., Dendy, E.D., Livescu, D. and Pedial-Collins, N.T. “CartaBlanca - An Object-Oriented Jacobian-Free Newton-Krylov Solver Environment for Multiphase Flow with Phase Change,” presented at the *7th Copper Mountain Conference on Iterative Methods*, March 24 - 30, 2002.
- Livescu, D. and Madnia, C.K. “Anisotropy in Reacting Compressible Turbulent Shear Flow,” presented at the *Third AFOSR International Conference on Direct Numerical Simulation and Large Eddy Simulation (TAICDL)*, University of Texas at Arlington, August 5 - 9, 2001.
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- Mitran, S., Caraeni, D. and Livescu, D. “Large Eddy Simulation of Unsteady Rotor-Stator Interaction in a Centrifugal Compressor,” AIAA Paper 97 - 3006 presented at the *33rd AIAA/ASME/SAE/ASEE Joint Propulsion Conference and Exhibit*, Seattle, Washington, July 6 - 9, 1997.
- Livescu, D. “A Finite-Difference Method for Inverse Calculation of the Compressible Turbulent Boundary Layer,” in *Proceedings of the International Conference Turbo '96*, 120 - 127, Bucharest, Romania, July 15 - 18, 1996.

IV. Non-peer reviewed conferences

- Pulido, J., Livescu, D., Burns, R., Canada, C., Ahrens, J., and Hamann, B., “Remote visual analysis at large turbulence datasets at multiple scales,” presented at the *Salishan Conference on High Speed Computing*, Gleneden Beach, Oregon, April 21-28, 2016.
- Livescu, D., Pulido, J., Burns, R., Canada, C., Ahrens, J. and Hamann, B., “Remote visualization and scale analysis of large turbulence datasets,” invited talk at the *American Geophysical Union Fall Meeting*, San Francisco, CA, December 12-16, 2015.
- Aslangil, D., Livescu, D. and Banerjee, A. “Reynolds and Atwood number effects on homogeneous Rayleigh-Taylor instability,” *Bulletin of American Physical Society* **60**(21), 174, presented at the *68th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston, MA, November 22-24, 2015.
- Wieland, S.A., Livescu, D., Vasilyev, O.V. and Reckinger, S.J. “The compressible Rayleigh-Taylor instability and vortex dynamics in stratified media,” *Bulletin of American Physical Society* **60**(21), 175, presented at the *68th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston, MA, November 22-24, 2015.

- Tian, Y., Jaber, F.A., Livescu and Li., Z. “Density effects on the shock turbulence interaction,” Bulletin of American Physical Society **60**(21), 117, presented at the *68th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston, MA, November 22-24, 2015.
- Livescu, D. and Li, Z. “Subgrid scale backscatter after the shock turbulence interaction,” Bulletin of American Physical Society **60**(21), 139, presented at the *68th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston, MA, November 22-24, 2015.
- Li, Z. and Livescu, D., “Direct Numerical Simulations of immiscible Rayleigh-Taylor instability,” Bulletin of American Physical Society **60**(21), 174, presented at the *68th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston, MA, November 22-24, 2015.
- Baltzer, J. and Livescu, D. “Statistics of high Atwood numbers turbulent mixing layers,” Bulletin of American Physical Society **60**(21), 331, presented at the *68th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Boston, MA, November 22-24, 2015.
- Livescu, D. and Li, Z. “Subgrid scale backscatter after the shock turbulence interaction,” Bulletin of American Physical Society **60**(8), 72, presented at the *19th Biennial APS Conference on Shock Compression of Condensed Matter*, Tampa, FL, June 14-19, 2015.
- Tian, Y., Jaber, F.A., Ki, Z. and Livescu, D. “Direct Numerical Simulation of turbulence and mixing in highly compressible flows,” Bulletin of American Physical Society **60**(8), 52, presented at the *19th Biennial APS Conference on Shock Compression of Condensed Matter*, Tampa, FL, June 14-19, 2015.
- Baltzer, J.R., Livescu, D. and Schwarzkopf J.D. “Variable-density effects in mixing layers: DNS and RANS comparisons,” presented at *JOWOG 32MIX*, Los Alamos, NM, February 2-6, 2015.
- Livescu, D. and Ryu, J., “DNS and LIA analysis of the shock-turbulence interaction,” Bulletin of American Physical Society **59**(20), 92, presented at the *67th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, San Francisco, CA, November 23-25, 2014.
- Li, Z. and Livescu, D., “Generalized Cahn-Hilliard Navier-Stokes equations for numerical simulations of multi-component immiscible flows,” Bulletin of American Physical Society **59**(20), 130, presented at the *67th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, San Francisco, CA, November 23-25, 2014.
- Baltzer, J. R. and Livescu, D., “DNS of turbulent mixing layers between two fluids of large density difference,” Bulletin of American Physical Society **59**(20), 92, presented at the *67th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, San Francisco, CA, November 23-25, 2014.
- Ryu, J. and Livescu, D. “The convergence of the DNS results to the LIA solution in canonical shock-turbulence interaction,” Bulletin of American Physical Society **58**(18), 303, presented at the *66th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Pittsburgh, PA, November 24-26, 2013.
- Livescu, D. and Wei, T. “Direct Numerical Simulations of Rayleigh-Taylor instability with gravity inversion,” Bulletin of American Physical Society **58**(18), 363, presented at the *66th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Pittsburgh, PA, November

24-26, 2013.

- Livescu, D. and Wei, T. "Direct Numerical Simulations of Rayleigh-Taylor instability with gravity inversion," *Bulletin of American Physical Society* **57**(17), 266, presented at the *65th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, San Diego, CA, November 18-20, 2012.
- Reckinger, S.V., Livescu, D. and Vasilyev, O.V. "Compressibility and stratification effects on single-mode Rayleigh-Taylor instability," *Bulletin of American Physical Society* **57**(17), 324-325, presented at the *65th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, San Diego, CA, November 18-20, 2012.
- Ryu, J. and Livescu, D. "Direct Numerical Simulations of stationary homogeneous variable-density turbulence," *Bulletin of American Physical Society* **56**(18), 122-123, presented at the *64th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Baltimore, MD, November 20-22, 2011.
- Reckinger, S.V., Livescu, D. and Vasilyev, O.V. "Simulations of compressible Rayleigh-Taylor instability using the adaptive wavelet collocation method," *Bulletin of American Physical Society* **56**(18), 283, presented at the *64th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Baltimore, MD, November 20-22, 2011.
- Wei, T. and Livescu, D. "Direct Numerical Simulations of tilted Rayleigh-Taylor instability," *Bulletin of American Physical Society* **56**(18), 283, presented at the *64th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Baltimore, MD, November 20-22, 2011.
- Livescu, D., Wei, T. and Petersen, M.R. "Direct Numerical Simulations of Rayleigh-Taylor instability," *Bulletin of American Physical Society* **56**(18), 283, presented at the *64th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Baltimore, MD, November 20-22, 2011.
- Livescu, D., Petersen, M.R. and Wei, T. "Variable-density Rayleigh-Taylor turbulence," invited presentation at the workshop *Compressible Turbulence at the Intersection between Astrophysics and Engineering*, Santa Fe, NM, 25 - 28 April, 2011.
- Reckinger, S. J., Livescu, D. and Vasilyev, O.V. "Wavelet-based simulations of Rayleigh-Taylor instability," *Bulletin of American Physical Society* **55**(16), 60, presented at the *63rd Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Long Beach, CA, November 21-23, 2010.
- Livescu, D., Petersen, M.R. and Gore R.A. "Turbulence and mixing characteristics in the variable-density Rayleigh-Taylor mixing layer," *Bulletin of American Physical Society* **55**(16), 61, presented at the *63rd Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Long Beach, CA, November 21-23, 2010.
- Wei, T., Livescu, D. and Andrews, M.J. "The effects of initial conditions on single and two-mode Rayleigh-Taylor instability," *Bulletin of American Physical Society* **55**(16), 106, presented at the *63rd annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Long Beach, CA, November 21-23, 2010.
- Petersen, M.R., Livescu, D. and Gore R.A. "Direct Numerical Simulations of Rayleigh-Taylor

instability with gravity reversal,” *Bulletin of American Physical Society* **55**(16), 61, presented at the *63rd Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Long Beach, CA, November 21-23, 2010.

- Petersen, M.R., Livescu, D., Gore, R.A. and Stalsberg-Zarling, K. “High Atwood number Rayleigh-Taylor instability with gravity reversal,” presented at *JOWOG 32MIX*, Los Alamos, NM, April 19-22, 2010.
- Livescu, D., Ristorcelli, J.R. and Gore R.A. “Mixing asymmetry in variable-density turbulence,” *Bulletin of American Physical Society* **54**(19), 203, presented at the *62th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Minneapolis, MN, November 22-24, 2009.
- Petersen, M.R., Livescu, D., Mohd-Yusof, J. and Dean, S. “High resolution numerical simulations of compressible isotropic turbulence,” *Bulletin of American Physical Society* **54**(19), 161, presented at the *62th Annual Meeting of the American Physical Society, Division of Fluid Dynamics*, Minneapolis, MN, November 22-24, 2009.
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